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Antisocial and Delinquent Behaviors in Youths With Mild or Borderline Disabilities

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Abstract

Six types of antisocial and delinquent behaviors (e.g., property destruction and authority avoidance) were assessed in 526 youths (11 to 24 years of age) with mild to borderline intellectual disabilities and 1,030 11- to 18-year-olds without intellectual disabilities. Overall, 10% to 20% of youths with intellectual disabilities exhibited some type of antisocial and delinquent behavior, which were quite persistent over a 5-year period. Youths who exhibited one type of antisocial and delinquent behavior were likely to also exhibit other types of such behaviors. Being male, younger, and having behavioral problems particularly predicted these behaviors across a 5-year period. Overall, boys but not girls with intellectual disabilities exhibited antisocial and delinquent behaviors more often than peers without intellectual disabilities. Clinical implications and implications for future research are discussed.

Several studies have suggested that individuals with mild intellectual disabilities show higher rates of offending behaviors, such as theft, arson, and vandalism than do both typically developing persons and individuals with more severe intellectual disabilities (Hall, 2000; Hodgins, 1992; Simpson & Hogg, 2001a). In addition, in prisons and penal institutions, many individuals have relatively low IQs (Holland, Clare, & Mukhopadhyay, 2002). However, methodological inconsistencies in definitions of *intellectual disabilities,* type of studied offenses, and studied populations limit drawing firm conclusions about the prevalence and nature of antisocial and delinquent behaviors in persons with intellectual disabilities (Simpson & Hogg, 2001a).

Even less is known about the characteristics of persons with intellectual disabilities who exhibit antisocial and delinquent behaviors. However, as in the general population, youths up to the age of 18 in particular are considered to show these behaviors (Hall, 2000). Hence, studies that are focused on antisocial and delinquent behaviors in adolescents and young adults (hereafter referred to as youths) with intellectual disabilities are needed. These studies might show a considerably elevated level of antisocial and delinquent behaviors in these individuals because several factors that predict future antisocial and delinquent behaviors in typically developing youths (e.g., emotional and behavioral problems and low socioeconomic status—SES (Burke, Loeber, & Birmaher, 2002; Farrington, 1995; Hawkins et al., 1998; Lipsey & Derzon, 1998) are more prevalent in those with intellectual disabilities (Dekker, Koot, Van der Ende, & Verhulst, 2002; Emerson, 2003). Furthermore, specific characteristics related to the intellectual disabilities (e.g., impulsivity, exploitability, and a desire to please) might also increase the risk for antisocial and delinquent behaviors (Cockram, 2005; Winter, Holland, & Collins, 1997).

Information is needed about which youths with mild to borderline intellectual disabilities are most likely to engage in these undesirable behaviors. In the general population, boys in particular exhibit antisocial and delinquent behaviors (Lipsey & Derzon, 1998; Loeber & Hay, 1997). In addition to age, gender, emotional and behavioral problems, low SES, minority race, involvement with antisocial peers, poverty, antisocial parents, poor family management and child-rearing practices, family and marital conflict were found to be associated with antisocial and delinquent behaviors (Burke et al., 2002; Farrington, 1995; Hawkins et al., 1998; Lipsey & Derzon, 1998). These factors might also predict antisocial and delinquent behaviors in youths with intellectual disabilities. Studies on the predictors of conduct problems and disruptive disorders in youths with intellectual disabilities can, of course, also offer directions on potential predictors of antisocial and delinquent behaviors. These studies revealed the following related factors: physical problems, inadequate socialization, life events of the child, low parental educational level, single parenthood, parental psychopathology, frequent use of punitive strategies, and family dysfunction (Dekker & Koot, 2003; Emerson, 2003).

In the present study our overall aim was to explore antisocial and delinquent behaviors in youths with intellectual disabilities. Several researchers have considered it fruitful to distinguish between different kinds of conduct problems and antisocial behaviors when investigating the prevalence and associated risk factors (Frick et al., 1993; Simpson & Hogg, 2001b). Therefore, we studied different behaviors that are regarded as rule-breaking or harm and damage inflicting, namely, mean or cruel to others, physical aggression, property destruction, theft/arson, authority avoidance (including truancy and running away), and substance (ab)use.

In addition, levels of agreement between different informants on children's emotional and behavioral functioning usually are rather low. Multiple informants are thus required to obtain a more comprehensive picture of these behaviors (Van der Ende, 1999). However, many general population studies are limited by using a single informant to assess antisocial and delinquent behaviors (Bor, McGee, & Fagan, 2004; Lahey et al., 2000). For our study population, the level of interrater agreement on emotional and behavioral problems is comparable to that of researchers studying the general population (Dekker et al., 2002; Douma, Dekker, Verhulst, & Koot, 2006). Therefore, we used information from three informants: parents, teachers/job coaches, and the youths themselves.

We examined the prevalence; 5-year persistence; and child, parent, and family predictors of antisocial and delinquent behaviors in youths with mild to borderline intellectual disabilities. Because different predictors have been found and suggested for boys versus girls and younger versus older adolescents (Burke et al., 2002; Lipsey & Derzon, 1998; Pakiz, Reinherz, & Giaconia, 1997), we tested for moderating effects of gender and age. In addition, we compared the prevalence rates of antisocial and delinquent behaviors between youths with and without intellectual disabilities. Finally, we investigated whether groups of youths with specific profiles of antisocial and delinquent behaviors could be distinguished and what factors were associated with these profiles.

Method

Participants

Participants with intellectual disabilities. This Dutch study, started in 1996, was focused on psychopathology in youths from schools for children with mild intellectual disabilities (IQ range about 60 to 80) and with moderate intellectual disabilities (IQ range about 30 to 60). At that time in the Netherlands, almost all children with moderate to mild intellectual disabilities attended one of these special schools. In this study, we concentrated on youths from schools for children with mild intellectual disabilities.

In 1996, 71 of all 87 schools in the province of Zuid-Holland randomly selected 20% of their students, resulting in a sample of 1,199 children. Of these, 171 were excluded because they exceeded the age range (6 to 18 years), were not living at home, or their parents had problems with the Dutch language. Of the remaining 1,028 eligible children, 198 of their parents could not be contacted in person, but 695 participated at Time 1 (Time 1 response = 67.6%, and 83.7% of those who were personally contacted participated). Children of participating parents were significantly younger than those of nonparticipating parents, $p < .05$, but no significant gender differences were found.

In this study, we only used data from Time 1 (1998) and Time 3 (2003) because these were the

only years that data were collected for the entire sample. The Time 3 target sample consisted of 695 youths whose parent had participated at Time 1. We traced parents through consulting phonebooks and municipal registers. In 40 cases we could not locate or personally contact the parents again (e.g., because of emigration), but 498 did participate (76.0%).

We asked parents for permission to contact and gather information from their child. Seventy-three parents refused and 41 youths could not be traced, but 428 of the 581 eligible youths participated (73.7%). Finally, regarding teacher/job coach information, 239 youths and/or their parents refused consent to send questionnaires to these informants, 39 youths could not be traced, 13 supplied insufficient information, and 29 did not go to school or have a job. We sent questionnaires to 375 teachers/job coaches of which 303 were filled out and returned (80.8%).

For 526 youths (75.7% of 695), information on antisocial and delinquent behaviors could be derived. We found no significant differences regarding gender, age group, or Time 1 deviant score on the Child Behavior Checklist (CBCL) syndrome scales Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, and Thought Problems between the 526 youths for whom these measures could be derived and those 169 for whom we could not. However, youths for whom antisocial and delinquent behaviors could be derived more often had a deviant Time 1 score on the CBCL syndrome scales Attention Problems, Delinquent Behavior, and Aggressive Behavior, and their parents were more often of Dutch origin, not single, and had a higher SES and educational level, all $ps < .05$. After adjusting for the possible interrelation between these variables, we found that youths for whom antisocial and delinquent behavior measures could be derived significantly more often had Dutch parents, and parents with higher SES, and more youths had a deviant Time 1 score on CBCL Attention Problems, $p < .05$. The Time 1 characteristics of the 526 youths are presented later in a table.

Participants from the general population. We used data from a general population study to compare antisocial and delinquent behavior frequencies between youths with and without intellectual disabilities. In 2003, 1,593 11- to 18-year-old youths were randomly drawn from municipal registers of the province of Zuid-Holland. Of these, 153 were excluded because they had intellectual disabilities or a major physical disability, their parents had problems with the Dutch language, or because they moved outside this province, resulting into 1,440 eligible youths. Of these, 1,033 of their parents participated (71.7%). Only youths whose parents participated were requested to participate, of which 860 (83.3%) responded positively. Regarding teacher information, 104 youths did not go to school; and of the remaining 929 parents who participated, 253 refused consent to contact their child's teacher. Consequently 676 questionnaires were sent, of which 463 were filled out and returned (68.5%). We found no gender differences between the youths who participated versus those who did not.

Measures

Antisocial and delinquent behaviors. Items from the CBCL, the Youth Self-Report, and the Teacher's Report Form (Achenbach, 1991a, 1991b, 1991c) were used to assess antisocial and delinquent behaviors. These reports are modeled after the CBCL and contain comparable statements about a child's emotional and behavioral problems in the preceding 6 months (Teacher's Report Form: 2 months), to be answered on a 3-point scale (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very true or often true*). The CBCL was filled out by the parents, the Teacher's Report Form by the teacher, and the Youth Self-Report by the youths. Trained interviewers administered this test in interview form to youths with intellectual disabilities. To establish the youths' drug use, we asked parents one question about their child's nonmedical use of soft drugs and/or hard drugs in the preceding 6 months (yes/no). The youths themselves were asked about their use of soft drugs and hard drugs in the past year (two questions, intellectual disabilities sample only).

Using specific items from the CBCL and their counterparts from the Teacher's Report Form and the Youth Self-Report, we assessed the following six types of antisocial and delinquent behaviors (instruments, item numbers, and content are in brackets): mean to others (CBCL, Teacher's Report Form, and Youth Self-Report: 16—mean to others), physical aggression (CBCL, Teacher's Report Form, and Youth Self-Report: 57—attacking others, 97—threaten to hurt others), property destruction (CBCL, Teacher's Report Form, and Youth Self-Report: 21—destroying things of others; CBCL 106—vandalism), theft/arson (CBCL and Youth Self-Report: 72—arson; CBCL, Teach-

er's Report Form, and Youth Self-Report: 82—stealing outside the home), authority avoidance (CBCL and Youth Self-Report: 67—running away from home; CBCL, Teacher's Report Form, and Youth Self-Report: 101—truancy), and substance (ab)use (CBCL and Youth Self-Report: 2—drinking alcohol without parents' permission, and the three drug use questions). For each type of antisocial and delinquent behavior, we took the highest score on either item to determine whether an adolescent had ever engaged in that type of antisocial and delinquent behavior—Score 0, had sometimes engaged in that type of antisocial and delinquent behavior—Score 1 (at least one informant scored 1 on an item), or Score 2—had often engaged in that type of antisocial and delinquent behavior (at least one informant scored 2 on an item). We used Spearman's rho to calculate the level of covariance between the different types of antisocial and delinquent behavior. Spearman's rho ranged from .13 (authority avoidance vs. mean to others) to .35 (theft/arson vs. property destruction) indicating separable entities.

We used dichotomized antisocial and delinquent behavior scores to study the prevalence, stability, and predictors of antisocial and delinquent behaviors. For each antisocial and delinquent behavior, we distinguished between youths who never displayed that type of antisocial and delinquent behavior (Score 0) and youths who either sometimes or often engaged in these behaviors (Score 1 or 2) or who had scored yes on one of the drug-use questions in case of substance (ab)use. We decided on this cut-off because these behaviors are of such a harmful nature, either to others (e.g., theft/arson, physical aggression) or to the youths themselves (e.g., authority avoidance, substance [ab]use) that even when displayed *sometimes* this calls for monitoring these youths and taking measures.

Predictors (assessed at Time 1). All Time 1 predictors were based on parents' reports, except for the child's emotional or behavioral problems, which were also based on the teacher's report. We dichotomized the scores of all predictor variables to identify those youths who particularly are at increased risk of displaying antisocial and delinquent behaviors.

To assess the child's emotional and behavioral problems, we asked parents to complete the Dutch CBCL and teachers to complete the Teacher's Report Form. Both instruments have been shown to have satisfactory to good reliability and validity (Verhulst, Van der Ende, & Koot, 1996, 1997). Our Time 1 study supported the use of these instruments in youths with intellectual disabilities. Cronbach's alphas for the CBCL ranged from .58 to .90 and of the Teacher's Report Form, from .59 to .95, which were about similar or even higher than for youths without intellectual disabilities. Furthermore, a high one-year stability of CBCL problem scores, $r = .79$, was found (Dekker et al., 2002). Of both instruments, we used the Total Problems score, the scores on Internalizing and Externalizing, and the eight syndrome scales scores (Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior, and Aggressive Behavior). Using the Dutch cut-off scores (Verhulst et al., 1996, 1997), we differentiated between youths whose scale score on either the CBCL or the Teacher's Report Form fell in the borderline/clinical range versus "normal" functioning youths whose scores on both instruments fell below this cut-off.

The Vineland Screener, a 45-item short form of the Vineland Adaptive Behavior Scales (Sparrow, Balla, & Cicchetti, 1984), is used to assess the extent to which adaptive behaviors regarding Communication, Daily Living Skills, and Socialization are performed (0 = *not/seldom,* 1 = *sometimes,* 2 = *usually*). A standard score below 85 represents inadequate adaptive functioning.

The Wahler Physical Symptoms Inventory (Wahler, 1968) was designed to measure the frequency (6-point scale, ranging from *almost never* to *almost every day*) of which a child is affected by 42 different physical problems (e.g., pains, nausea, sleeping problems). The total score was dichotomized at one standard deviation (*SD*) above the mean, resulting in children with low versus high physical symptoms (i.e., physical problems).

On a short version of the Life Events Questionnaire (Berden, Althaus, & Verhulst, 1990), parents reported whether their child had experienced any of 16 listed life-events in the past 2 years (e.g., a parent leaving the household, death of a loved one, hospitalization for at least a fortnight). If so, they were asked whether their child was negatively affected by it. The sample was split into those children who experienced none versus those who had experienced at least one negative life-event.

We used the Young Adult Self-Report to measure psychopathology in the primary caregiver in the preceding 6 months (Achenbach, 1997). We

used the short version, which contained 29 of the original 110 items that discriminated best between referred and nonreferred participants (Wiznitzer, 1993). One *SD* above the general population normative sample mean differentiated between healthy functioning caregivers and caregivers with higher levels of psychopathology (i.e., parental psychopathology).

Family functioning was determined through the General Functioning subscale of the McMaster Family Assessment Device (Byles, Byrne, Boyle, & Offord, 1988). Parents indicated whether they agreed or disagreed (on a 4-point scale) with each of 12 statements about their family functioning. A mean item score of 2.17 discriminated between healthy and dysfunctional families.

Family SES was assessed by taking the highest occupational level of either parent (Central Bureau of Statistics, 1993). We split these levels into low SES (i.e., unemployed, unskilled work, or work at a lower vocational training level) versus medium/high SES (all higher levels of work).

The highest completed educational level of either parent was used to determine parental educational level. Lower educational level implied a degree at a lower vocational training level or lower; and medium/high educational level implied at least a high school degree.

The demographic questionnaire provided information on the parents' ethnic background (both parents are Dutch versus at least one non-Dutch parent) and the number of parents in the household (single parent vs. two parents).

Data Analysis

For each antisocial and delinquent behavior, we calculated the level of stability from Time 1 to Time 3. This was based on teacher and parent reports only because youth self-reports were not collected at Time 1. Odds Ratios (OR) and the corresponding 95% Confidence Intervals (95% CIs) indicate the extent of increased risk for antisocial and delinquent behaviors at Time 3 in youths who displayed these behaviors at Time 1.

Chi-square tests were used to detect differences in the dichotomized prevalence rates of antisocial and delinquent behaviors between the intellectual disabilities and general population sample. Due to differences in definitions of substance (ab)use at Time 1 and Time 3 and in the general population sample, we could not compare these prevalence rates.

We applied logistic regression analyses to study the predictors of youths with intellectual disabilities engaging in a certain type of antisocial and delinquent behavior, adjusted for gender and age differences. We tested for moderating effects of age group and gender by adding either age or gender and its interaction term with each main predictor into the model. In case of a significant interaction, post-hoc probing provided the ORs of the predictor for each gender or age group (Holmbeck, 2002). In a multiple logistic regression analysis, in addition to gender and age group, we used all significant main predictor variables from the univariate analysis to identify the strongest unique predictors of antisocial and delinquent behaviors. We did not control for Time 1 antisocial and delinquent behaviors because they were already incorporated in the Time 1 measures of the child's behavioral problems, such as Aggressive Behavior, Delinquent Behavior, and Externalizing. Adding the Time 1 antisocial and delinquent behavior to the equation would be redundant because it would double their impact on the outcome.

Nagelkerke R^2 was calculated to estimate the percentage explained variance of these full models ($R^2 \times 100$). We performed three separate analyses for each antisocial and delinquent behavior outcome, including the dichotomized Time 1 CBCL/Teacher's Report Form scores on (a) Total Problems, (b) Externalizing and Internalizing, and (c) the eight syndrome scales as predictors.

Finally, for CBCL, Teacher's Report Form, and Youth Self-Report separately, latent class analysis was performed on the selected antisocial and delinquent behavior items to test whether groups of youths could be distinguished with specific patterns of antisocial and delinquent behaviors. We used this analysis to determine the smallest number of classes of individuals with similar patterns of antisocial and delinquent behaviors. Classes are added stepwise until the model optimally fits the data. The Vuong-Lo-Mendell-Rubin likelihood ratio test determines the number of classes that fit the data best (Lo, Mendell, & Rubin, 2001). Class sensitivity indicates how well youths are classified to a particular class (ranging from 0.0 to 1.0).

Results

Table 1 shows that mean to others had the highest prevalence rate (31.0%); most types of antisocial and delinquent behavior were displayed by about 10% to 20% of youths with mild to bor-

Table 1. Prevalence and 5-Year-Stability (%) of Antisocial and Delinquent Behaviors (ADB)

	Time 1–Time 3 stability ID[a] sample (n = 506)[b]					Prevalence ID sample (n = 391, 11–18 years)		Prevalence GP[c] sample (n = 1033, 11–18 years)	
Type of ADB	Time 3 Prevalence ID sample (n = 526)	Not → not[d]	ADB → ADB[e]	Odds ratio	95% CI	Some-times	Often	Some-times	Often
Mean to others	31.0	90.1	39.3	5.9	3.7–9.4	31.5	2.3	28.5	2.4
Physical aggression	17.7	95.3	21.8	5.7	3.0–10.7	17.1	2.3	12.1	0.7
Theft/arson	10.6	94.5	17.6	3.7	1.8–7.8	10.2	1.8	5.8	0.5
Property destruction	13.1	93.8	27.8	5.8	3.1–10.6	10.2	2.8	7.2	0.7
Authority avoidance	19.0	87.2	30.2	2.9	1.5–5.6	13.6	6.4	17.1	3.2
Substance (ab)use	17.5								

[a]Intellectual disabilities. [b]Parent and teacher reports only. [c]General population. [d]Percentage of youths who did not display this type of ADB at Time 1 or Time 3. [e]Percentage of youths who displayed this type of ADB at Time 1 and Time 3.

derline intellectual disabilities. The table also reveals the vast majority of youths who did not engage in antisocial and delinquent behavior at Time 1 also did not display these behaviors 5 years later. The persistence of antisocial and delinquent behaviors was highest for mean to others (39.3%), whereas theft/arson (17.6%) and physical aggression (21.8%) were least persistent. Furthermore, youths who engaged in a specific type of antisocial and delinquent behavior at Time 1 had an increased risk for displaying this behavior 5 years later. The ORs ranged from 2.9 for authority avoidance to 5.9 for mean to others.

Table 1 also shows that the distribution of the antisocial and delinquent behavior scores was skewed. In both samples, whenever a type of antisocial and delinquent behavior was displayed, this was predominantly *sometimes*. Only few had *often* engaged in these behaviors. Next, we compared the dichotomized prevalence rates of antisocial and delinquent behaviors between boys and girls with and without intellectual disabilities. Table 2 shows that whereas girls with intellectual disabilities did not engage in antisocial and delinquent behaviors more often than girls without intellectual disabilities did, prevalence rates of all antisocial and delinquent behaviors were higher in boys with intellectual disabilities than boys without intellectual disabilities, except for authority avoidance, p = .27. Compared with boys without intellectual disabilities, boys with intellectual disabilities were between 1.4 (mean to others) and 2.1 (theft/arson) times more likely to engage in antisocial and delinquent behaviors.

For youths with intellectual disabilities, the results from latent class analysis indicated that for CBCL, Youth Self-Report, and Teacher's Report Form separately, two classes fitted the data better

Table 2. Comparing Prevalence Rates of Antisocial and Delinquent Behaviors (ADB) of Youths With Intellectual Disabilities (ID) and From the General Population (GP) by Gender

	Boys (%)			Girls (%)		
Type of ADB	ID (n = 238)	GP (n = 511)	$\chi^2(1)$	ID (n = 153)	GP (n = 522)	$\chi^2(1)$
Mean to others	37.4	30.1	3.90*	28.1	31.6	0.68
Physical aggression	25.2	16.2	8.45**	10.5	9.4	0.16
Theft/arson	16.7	8.6	10.81**	4.6	4.0	0.09
Property destruction	18.0	11.2	6.59*	5.2	4.6	0.10
Authority avoidance	21.8	18.4	1.23	17.0	22.2	1.95

*p < .05. **p < .01.

than a three-class solution, $p < .05$. Thus, for all three instruments, two groups of youths with different profiles could be distinguished. The first group represented youths with low mean scores on all antisocial and delinquent behavior items; the second group had considerably higher mean scores. We distinguished between youths who had a low-antisocial and delinquent behavior profile on all instruments ($n = 439$) and those who had a high-antisocial and delinquent behavior profile on at least one instrument ($n = 87$, 16.6%). For all three instruments, class sensitivity was high (CBCL, .98 to .98; Youth Self-Report, .84 to .97; Teacher's Report Form, .91 to .99).

Next, we studied the 5-year predictors of the six antisocial and delinquent behaviors and the high-antisocial and delinquent behavior profile. Table 3 shows that except for authority avoidance, especially age (younger) and gender (male) predicted all antisocial and delinquent behaviors and the high-antisocial and delinquent behavior profile. In addition, except for substance (ab)use, emotional and/or behavioral problems also predicted all antisocial and delinquent behaviors and the high-antisocial and delinquent behavior profile. Besides Social Problems, mainly Attention Problems, Delinquent Behavior, Aggressive Behavior, and Externalizing predicted antisocial and delinquent behaviors. Most of the other child, parent, and family factors predicted only one or two antisocial and delinquent behaviors, but not the high-antisocial and delinquent behavior profile. Moreover, results from multiple logistic regression analyses showed that most of these other child, parent, and family factors did not uniquely predict antisocial and delinquent behaviors (see Table 4). Except for substance (ab)use and authority avoidance, the antisocial and delinquent behavior and the high-antisocial and delinquent behavior profiles were mainly predicted by the child's age and male gender, and by Time 1 behavioral problems (Externalizing; Delinquent Behavior), but the high-antisocial and delinquent behavior profile was uniquely predicted by Externalizing and Social Problems. The estimated percentage explained variance of the full models (Nagelkerke R^2) ranged from 5.5% for substance (ab)use to 17.3% for theft/arson.

Finally, few moderating effects for age and gender were found (see Table 3). For example, Withdrawn and parental psychopathology (in girls) and family dysfunction (in older youths) predicted property destruction, while Social Problems and Attention Problems (in older youths) predicted authority avoidance.

Discussion

Even though youths with intellectual disabilities are considered to be at increased risk for exhibiting antisocial and delinquent behaviors, this study was the first in which investigators thoroughly explored antisocial and delinquent behaviors in a population-based sample of 11- to 24-year-olds with mild to borderline intellectual disabilities, using information from multiple informants. Our results showed that, roughly, each type of antisocial and delinquent behavior was exhibited by 10% to 20% of the youths with intellectual disabilities. Least prevalent were the behaviors that might be perceived as the most serious, namely theft/arson and property destruction. The most prevalent antisocial and delinquent behavior could be considered least serious (i.e., mean to others, 31.0%), which was also the most persistent type of antisocial and delinquent behavior. The odds of engaging in an antisocial and delinquent behavior at Time 3 were significantly increased for those who showed that type of antisocial and delinquent behavior at Time 1. Similar to general population studies (Storvoll & Wichstrom, 2003), this points to reasonable 5-year stability of antisocial and delinquent behaviors.

Whereas other studies indicated that individuals with intellectual disabilities more often offend than do their peers without intellectual disabilities (Hall, 2000; Hodgins, 1992; Simpson & Hogg, 2001a), our study confirmed this for boys (except for authority avoidance), but not for girls. The latter is contrary to Hodgins (1992), who found that women with intellectual disabilities were more likely to offend and to commit a violent offense (and be convicted for it) than were women without a handicap. One has to consider, however, that the participants in Hodgins' study were older than those in our study and that criminal records were examined to collect data on mainly serious offenses. Regarding the differences between boys and girls with intellectual disabilities, it might be that parents are more protective towards their daughters than towards their sons with intellectual disabilities and keep their daughters closer to home. Another possibility is that boys with intellectual disabilities especially are prone to impulsivity and to being lured into engaging in undesirable behaviors.

Table 3. Prevalence of Time 1 Predictors and Significant Predictors of Antisocial and Delinquent Behaviors (ADB) and High ADB Behavior Profile

Time 1 predictor	Prevalence Time 3 (%)	Mean to others OR (95% CI)	Physical aggression OR (95% CI)	Property destruction OR (95% CI)
Child characteristics				
Male gender	59.7		2.2 (1.3–3.7)	2.7 (1.5–5.0)
6–11 years (vs.12–18)	52.5	2.0 (1.4–3.0)	1.7 (1.1–2.8)	1.7 (1.0–2.9)
≥1 negative life-event	23.0			
Physical problems	12.7			
Emotional or behavioral problems				
Total problems	62.6	1.8 (1.2–2.7)	3.1 (1.8–5.5)	2.3 (1.3–4.2)
Internalizing	53.3	1.8 (1.2–2.6)	2.5 (1.5–4.1)	
Externalizing	52.5	2.2 (1.5–3.2)	2.4 (1.4–3.8)	2.3 (1.3–4.1)
Withdrawn	23.0			B = ns; G = 5.3 (1.8–15.9)**
Somatic			2.0 (1.1–3.4)	
Complaints	18.0			
Anxious/depressed	23.6	1.8 (1.2–2.9)	2.2 (1.3–3.7)	
Social problems	43.1	2.3 (1.6–3.5)	3.2 (2.0–5.3)	1.9 (1.1–3.2)
Thought problems	16.7		2.3 (1.3–3.9)	
Attention problems	40.4	2.5 (1.7–3.6)	2.4 (1.5–3.8)	3.0 (1.7–5.1)
Delinquent behavior	25.1	2.6 (1.7–4.0)	3.1 (1.9–5.0)	3.2 (1.9–5.5)
Aggressive behavior	30.1	2.7 (1.8–4.1)	2.7 (1.7–4.4)	2.6 (1.5–4.4)
Inadequate adaptive functioning				
Communication	82.5			
Socialization	67.9		2.1 (1.2–3.5)	
Daily living skills	61.7			
Parent and family predictors				
Single parent	14.9			2.2 (1.2–4.0)
≥1 parent non-Dutch	23.1			
Low SES	57.2			1.8 (1.0–3.1)
Low educational level	72.2			
Parental psychopathology	15.3			B = ns; G = 7.0 (2.2–22.6)
Family dysfunction	14.7			Y = ns; O = 2.8 (1.0–7.5)**

Note. Results from univariate logistic regression analysis, adjusted for gender and age group, all *p*s < .05.
**Significant interaction effect, no main effect; OR = odds ratio; CI = confidence interval; Y = 6–11 years; O = 12–18 years; B = boys; G = girls; ns = not significant.

Table 3. Extended

Theft/arson	Substance (ab)use	Authority avoidance	High-ADB profile
OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
4.1 (2.0–8.6) 3.5 (1.8–6.7)	2.5 (1.5–4.2)		2.3 (1.4–3.8) 1.8 (1.1–2.9)
Y = ns; O = 5.9 (1.8–19.1)**	Y = ns; O = ns**		
2.1 (1.1–3.9)		1.6 (1.0–2.6) 1.9 (1.2–3.1)	1.6 (1.0–2.6)
2.5 (1.4–4.6)		1.7 (1.1–1–28) Y = ns, O = 3.1 (1.5–6.4)	2.8 (1.7–4.6) B = ns, G = 3.3 (1.2–9.0)**
2.2 (1.2–3.9)		Y = ns; O = 2.7 (1.3–5.3)**	2.0 (1.3–3.3)
2.0 (1.1–3.6)			2.6 (1.6–4.3)
2.1 (1.2–3.9)		1.6 (1.0–2.6)	2.4 (1.5–3.9)
2.0 (1.1–3.9)		1.7 (1.0–2.9) 1.6 (1.0–2.6)	B = ns; G = 6.2 (1.4–27.6)**
B = 2.4 (1.2–4.9) B = ns; G = 0.18 (0.04–0.76)**	1.8 (1.0–3.0)	Y = ns; O = ns**	B = ns; G = ns**
G = 0.17 (0.03–0.85)**		2.0 (1.2–3.5)	

Table 4. Strongest Predictors of Antisocial and Delinquent Behaviors (ADB) and High-ADB Profile

	Mean to others	Physical aggression	Property destruction	Theft/arson	Substance (ab)use	Authority avoidance	High-ADB profile
Time 1 predictor	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
I. Total Problems							
Total problems	1.8 (1.2–2.7)	2.9 (1.6–5.1)	1.9 (1.0–3.6)				
Male gender		2.2 (1.3–3.7)	3.3 (1.7–6.3)		2.5 (1.5–4.2)		
6–11 years (vs. 12–18)	2.2 (1.5–3.2)	2.0 (1.2–3.2)	1.8 (1.1–3.2)				
Inadequate socialization		1.8 (1.0–3.1)					
≥1 parent non-Dutch					1.8 (1.0–3.0)		
Nagelkerke R^2 (full model)	.063	.117	.122	—	.055	—	
II. Internalizing/Externalizing							
Internalizing		1.9 (1.1–3.2)					
Externalizing	2.0 (1.3–2.9)	1.8 (1.1–3.1)	1.9 (1.1–3.3)	2.0 (1.1–3.7)			1.6 (1.0–2.6)
Male gender		2.3 (1.4–3.9)	3.3 (1.7–6.3)	4.2 (2.0–8.8)			2.3 (1.4–3.9)
6–11 years (vs. 12–18)	2.1 (1.4–3.1)	1.9 (1.2–3.0)	1.8 (1.0–3.1)	3.5 (1.8–6.8)			1.8 (1.1–3.0)
Inadequate daily living skills				1.9 (1.0–3.7)			
Nagelkerke R^2 (full model)	.089	.122	.124	.161		.046	.065
III. Syndrome Scales							
Social Problems							2.0 (1.1–3.7)
Attention Problems			2.3 (1.2–4.6)				
Delinquent Behavior		1.9 (1.0–3.4)	2.0 (1.0–4.0)				
Male gender		2.7 (1.6–4.6)	3.4 (1.8–6.7)	4.7 (2.2–10.2)			2.7 (1.6–4.7)
6–11 years (vs. 12–18)	2.3 (1.5–3.5)	2.0 (1.2–3.3)		3.8 (1.9–7.5)			2.0 (1.2–3.4)
Nagelkerke R^2 (full model)	.130	.155	.169	.173		.053	.124

Note. Results from multiple logistic regression analysis, adjusted for gender and age, and all significant main predictors from univariate analysis, all $ps < .05$.

Next, regardless of the informant, latent class analysis indicated that two profiles of youths could be distinguished. The first class included youths with low and the second class included youths with considerably higher levels of antisocial and delinquent behaviors. Although the covariance between the six types of antisocial and delinquent behavior was low to moderate, our results from latent class analysis suggest that when youths with intellectual disabilities engage in a certain type of antisocial and delinquent behavior, they are likely to also exhibit other types of antisocial and delinquent behaviors. In addition, except for substance (ab)use and authority avoidance, the main predictors of the antisocial and delinquent behaviors and of the high-antisocial and delinquent behavior profile were also highly similar.

Comparable with general population studies, especially boys and 11- to 18-year olds exhibited antisocial and delinquent behaviors. In addition to the child's age and gender, other predictors were also consistent with findings in general population studies and studies on psychopathology in youths with intellectual disabilities: problem behavior in childhood, inadequate adaptive functioning, single parenthood, low family SES, parental psychopathology, and family dysfunction (Burke et al., 2002; Dekker & Koot, 2003; Hawkins et al., 1998; Lipsey & Derzon, 1998; Loeber & Hay, 1997; Loeber & Stouthamer-Loeber, 1998; Simpson & Hogg, 2001b). Furthermore, with a few exceptions and comparable to a general population study (Storvoll & Wichstrom, 2002), about similar variables predicted antisocial and delinquent behaviors in boys and girls and in younger and older youths. Thus, predictors of antisocial and delinquent behaviors in youth with mild to borderline intellectual disabilities are highly comparable to those in typically developing peers.

Multiple logistic regression analyses showed that in addition to age and gender, primarily Attention Problems, Delinquent Behavior, and Externalizing were the strongest unique predictors of antisocial and delinquent behaviors, although not of substance (ab)use and authority avoidance. Moreover, regarding the latter, multiple logistic regression analysis did not reveal any unique predictor, and all significant factors from univariate analysis explained about 5% of the variance in these types of antisocial and delinquent behavior 5 years later. Apparently, these behaviors, which can be regarded as covert nondestructive behaviors (Frick et al., 1993), cannot be accurately predicted by the child, parent, and family variables that we investigated in this study. For the other types of antisocial and delinquent behavior, the significant predictors of univariate analysis explained between 6.3% (mean to others, including the total problems score) and 17.3% (theft/arson, including the syndrome scales) of variance. The percentage explained variance for the high-antisocial and delinquent behavior profile ranged from 6.5% to 12.4%. Although significant predictors were found, they could only partially explain engaging in antisocial and delinquent behaviors at Time 3. This is, however, comparable to several general population studies (Bor et al., 2004; Pakiz et al., 1997; Storvoll & Wichstrom, 2002). A 5-year interval may be too long a period to predict antisocial and delinquent behaviors any better. Indeed, Pakiz et al. (1997) showed that antisocial behavior at age 21 could be better predicted at the age of 18 than at the ages of 15, 9, and 5 years of age.

Furthermore, factors other than those included in this study seem likely to also predict engaging in antisocial and delinquent behaviors. For example, researchers have found that having antisocial parents, involvement with antisocial peers, certain child-rearing practices, and family management are strongly associated with antisocial and delinquent behaviors in general population studies (Burke et al., 2002; Farrington, 1995; Hawkins et al., 1998). Because we were not able to examine these factors, future studies need to be focused on these child and family characteristics to better comprehend and predict antisocial and delinquent behaviors in youths with intellectual disabilities.

Nonrandom sample attrition may somewhat limit the generalizability of our findings. It may have resulted in a slight overestimation of the prevalence rates of antisocial and delinquent behaviors because youths with deviant Time 1 scores on CBCL Attention Problems, Delinquent Behavior, and Aggressive Behavior were somewhat overrepresented in this study, and these problem behaviors increased the odds of displaying antisocial and delinquent behaviors. In contrast, especially because fewer youths from non-Dutch parents were included in our sample, and having a non-Dutch parent increased the risk for substance (ab)use, a slight underestimation of the prevalence of substance (ab)use may have occurred. Moreover, our findings are less applicable to youths

whose parents had significant problems with the Dutch language (Time 1 exclusion criterion). Furthermore, the CBCL, Teacher's Report Form, and Youth Self-Report items that were used to construct antisocial and delinquent behaviors did not explicitly include serious and violent offenses, such as armed robbery and sexual assault. Future studies are needed to determine the prevalence and predictors of these offenses.

In addition, youths were considered to have engaged in a type of antisocial and delinquent behavior when either of the informants indicated that this type of behavior was displayed at least sometimes. Although this may be considered a lenient criterion for caseness, these types of behaviors are of such a harmful nature that even if they are displayed sometimes, they warrant our attention and call for intervention. However, in future population-based studies that are designed to investigate predictors of antisocial and delinquent behaviors and in which a more stringent criterion for caseness is used, researchers need to take into account that only few youths often display these antisocial and delinquent behaviors. Large sample sizes are, therefore, required.

Despite these limitations, we are able to offer suggestions for clinical implications based on our results. As primarily adolescent boys with intellectual disabilities exhibited antisocial and delinquent behaviors (as opposed to girls and older boys with intellectual disabilities and boys without intellectual disabilities), secondary preventive measures should at least be targeted at 6- to 11-year-old boys who have higher levels of emotional and behavioral problems and already display antisocial and delinquent behaviors. General instruments, such as the CBCL, Teacher's Report Form, and Youth Self-Report can help to improve early detection of these problems and behaviors.

Obviously, treatment of emotional and behavioral problems at an early age is recommended because it might also prevent future antisocial and delinquent behavior. Results from general population studies have indicated that treatment needs to address multiple risk factors, especially the parenting domain (Burke et al., 2002). Because low SES has been associated with less preferable parenting styles (Patterson, DeBaryshe, & Ramsey, 1989), and relatively many families of youths with intellectual disabilities have low SES, the parent domain also needs to be considered when treating youths who have emotional and behavioral problems or show antisocial and delinquent behaviors.

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